

### **Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

### **Listing of Claims:**

1. (currently amended) A molten metal pump system comprising:

- a pump framework;
- a pump motor mounted on the pump framework;
- a pump base attached to the pump framework, the pump base including an impeller aperture with interior walls;
- an impeller shaft attached to the pump motor;
- an impeller body attached to the impeller shaft and at least partially within the impeller aperture in the pump base, the impeller body comprising:
  - a center portion with a shaft aperture therein;
  - a plurality of vanes extending outward from the center portion, each vane including a radially outward end, an input side, and an output side; and
- wherein a particle relief passageway is defined between the radially outward end of the plurality of vanes on the impeller and the interior walls of the impeller aperture, the particle relief passageway being a predetermined size to allow particles of a predetermined size to pass between the plurality of vanes and the interior ~~walls~~ wall of the impeller aperture where metal enters between of the plurality of vanes and the pump base.

2. (original) A molten metal pump system as recited in claim 1, and further wherein the impeller body is wholly within the impeller aperture in the pump base.

3. (previously presented) A molten metal pump system comprising:  
a pump framework;  
a pump motor mounted on the pump framework;  
a pump base attached to the pump framework, the pump base including an impeller aperture with interior walls;  
an impeller shaft attached to the pump motor;  
an impeller body attached to the impeller shaft and at least partially within the impeller aperture in the pump base, the impeller body comprising:  
a center portion with a shaft aperture therein;  
a plurality of vanes extending outward from the center portion, each vane including a radially inward end, a radially outward end, an input side, an output side, a leading surface, a trailing surface, a vane width between the leading surface and the trailing surface; the plurality of vanes being tapered at the input side from the radially inward end to the radially outward end, thereby creating a shoulder on the radially outward end of the plurality of vanes; and  
wherein a predetermined particle relief passageway is defined between the plurality of vanes on the impeller, the predetermined particle relief passageway

being sized to allow particles of a predetermined size to pass between the plurality of vanes and the interior walls of the impeller aperture of the pump base.

4. (original) A molten metal pump system as recited in claim 3, and further wherein the impeller body is wholly within the impeller aperture in the pump base.

5. (previously presented) A molten metal pump impeller system comprising:  
an impeller body comprising:

a center portion with a shaft aperture therein;

a plurality of vanes extending outward from the center portion, each vane including a radially inward end, a radially outward end, an input side, an output side, a leading surface, a trailing surface, a vane width between the leading surface and the trailing surface; and

wherein the vane width is tapered from the input side to the output side.

6. (previously presented) A molten metal pump impeller system as recited in claim 5, and further comprising an annular base at the output side of the plurality of vanes.

7. (previously presented) A molten metal pump impeller system as recited in claim 6, and further wherein the entire vane width is tapered from the input side to the annular base.

8. (previously presented) A molten metal pump impeller system as recited in claim 5, and further wherein the input side is the vertically upward side.

9. (previously presented) A molten metal pump impeller system as recited in claim 5, and further wherein the plurality of vanes are tapered at the input side from the radially inward end to the radially outward end, thereby creating a shoulder on the radially outward end of the plurality of vanes.

10. (previously presented) A molten metal pump impeller system as recited in claim 5, and further wherein the leading surface is convex.

11. (currently amended) A molten metal pump impeller system comprising:  
an impeller body comprising:

a center portion with a shaft aperture therein;

a plurality of vanes extending outward from the center portion, each vane including a radially inward end, a radially outward end, an input side, an output side, a leading surface, a trailing surface, a vane width between the leading

surface and the trailing surface and an annular base at the output side of the plurality of vanes;

wherein the vane width includes a taper between the input side and the annular base; and

wherein the leading surface is convex.

PLEASE CANCEL CLAIMS 12 & 13

14. (previously presented) A molten metal pump impeller system as recited in claim 11, and further wherein the input side is the vertically upward side.

15. (previously presented) A molten metal pump impeller system as recited in claim 11, and further wherein the plurality of vanes are tapered at the input side from the radially inward end to the radially outward end, thereby creating a shoulder on the radially outward end of the plurality of vanes.